

REMARKS

Claims 1-4, 6-10, 12-16, 18, 19, and 21-25 are now pending. Claims 1-4, 6-10, 12-16, 18, 19, and 21 are withdrawn. Claims 22-25 are under examination. Claims 5, 11, 17, and 20 are cancelled.

Claims 5, 11, 17, 20 and 22-25 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. (U.S. Patent 6511588) in view of Hirai et al. (U.S. Patent 2003/0058629).

Claims 5, 11, 17 and 20 are cancelled. Therefore, claims 22-25 are discussed.

The Examiner indicated that there is a description that fillability is judged by using the Boltzmann's function, in col. 3, line 20 to col. 5, line 22 of Kobayashi et al. and paragraph [0061] of Hirai et al. However, both references are silent to using Boltzman's function or following formula (1).

$$y = \frac{A_1 - A_2}{1 + e^{\frac{x-x_0}{dx}}} + A_2. \quad (1)$$

Firstly, Kobayashi is discussed.

Kobayashi discloses an invention related to a diffusion coefficient of an additive for a plating solution, a reaction rate of adsorption or consumption of an additive and a size of a hole to be plated. However, Kobayashi does not disclose or suggest approximating a time-dependent potential change curve for a predetermined period of time after the start of an electrolysis, according to a Boltzmann's function as the present invention.

In addition, Kobayashi discloses that an additive satisfying a predetermined condition is selected in plating. However, Kobayashi does not focus on a point that fillability of a plating solution changes over time.

In addition, secondary, Hirai discloses as follows. An addition is added in order to improve fillability. Plating is performed under a condition that a temperature or current density of a plating solution is set to be a predetermined value. However, Hirai does not disclose or suggest approximating a time-dependent potential change curve for a predetermined period of time after the start of an electrolysis, according to a Boltzmann's function as the present invention. In addition, Hirai inherently does not focus on a point that fillability of a plating solution changes over time.

As mentioned above, in both Kobayashi and Hirai, there is not a description or a motivation of approximating a time-dependent potential change curve for a predetermined period of time after the start of an electrolysis, according to a Boltzmann's function. Therefore, since claims 22-25 are specified by a Boltzmann's function, claims 22-25 was not obvious for an ordinary skilled person in the art at the time of the invention. Therefore, claims 22-25 can not be rejected under 35 U.S.C. 103(a).

CONCLUSION

Applicant believes that all of the claims are in condition for allowance. Removal of the rejection is respectfully requested.

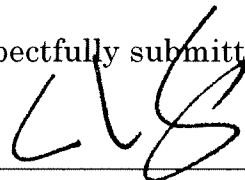
The Commissioner is authorized to charge any fee(s) due to Squire Sanders and Dempsey, L.L.P. Deposit Account No. 07-1850.

Should the Examiner have any questions or concerns, the Examiner is invited to call the undersigned attorney of record.

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Respectfully submitted,



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